		Exploring Aero	
2009 Science Core Curriculum Content Standards			
New James Coismas	<u> </u>	Core Curriculum Con	tent Standards
New Jersey Science			
Grades 5-6	Ctata	Ctondordo	
Activity/Lesson	State	Standards	
Fundamentals of		SCI.5-	Friction is a force that acts to slow or stop the
Aeronautics (145-176)	N I	6.5.2.6.E.c	motion of objects.
ACIONAGIOS (140-170)	140	0.0.2.0.L.0	Predict what would happen to an orbiting object
Fundamentals of		SCI.5-	if gravity were increased, decreased, or taken
Aeronautics (145-176)	N.I	6.5.4.6.A.3	away.
Airplane Control(209-	110	SCI.5-	Describe the force between two magnets as the
256)	NJ	6.5.2.6.E.2	distance between them is changed.
Airplane Control(209-	1.10	SCI.5-	Friction is a force that acts to slow or stop the
256)	NJ	6.5.2.6.E.c	motion of objects.
		0.0.2.0.2.0	Predict what would happen to an orbiting object
Airplane Control(209-		SCI.5-	if gravity were increased, decreased, or taken
256)	NJ	6.5.4.6.A.3	away.
		SCI.5-	Friction is a force that acts to slow or stop the
How an Airplane Flies	NJ	6.5.2.6.E.c	motion of objects.
			Model and explain how the description of an
The Tools of		SCI.5-	object's motion from one observer's view may
Aeronautics	NJ	6.5.2.6.E.1	be different from a different observer's view.
			Demonstrate and explain the frictional force
The Tools of		SCI.5-	acting on an object with the use of a physical
Aeronautics	NJ	6.5.2.6.E.3	model.
		SCI.5-	Describe the force between two magnets as the
The Activity Center	NJ	6.5.2.6.E.2	distance between them is changed.
		SCI.5-	Friction is a force that acts to slow or stop the
The Activity Center	NJ	6.5.2.6.E.c	motion of objects.
			Sinking and floating can be predicted using
		SCI.5-	forces that depend on the relative densities of
The Activity Center	NJ	6.5.2.6.E.d	objects and materials.
			Predict what would happen to an orbiting object
		SCI.5-	if gravity were increased, decreased, or taken
The Activity Center	NJ	6.5.4.6.A.3	away.
			Model and explain how the description of an
		SCI.5-	object's motion from one observer's view may
Science of Flight	NJ	6.5.2.6.E.1	be different from a different observer's view.
		SCI.5-	Friction is a force that acts to slow or stop the
Science of Flight	NJ	6.5.2.6.E.c	motion of objects.
		00: -	Demonstrate and explain the frictional force
0-1	.	SCI.5-	acting on an object with the use of a physical
Science of Flight	NJ	6.5.2.6.E.3	model.
		001.5	Generate a conclusion about energy transfer
Onlaws of Fileds	N. I	SCI.5-	and circulation by observing a model of
Science of Flight	NJ	6.5.4.6.E.1	convection currents.
Intro to Aeronautics	NI I	SCI.5-	Describe the force between two magnets as the
(109-123)	NJ	6.5.2.6.E.2	distance between them is changed.
Intro to Aeronautics	NI I	SCI.5-	Friction is a force that acts to slow or stop the
(109-123)	NJ	6.5.2.6.E.c	motion of objects.

			Predict what would happen to an orbiting object		
Intro to Aeronautics		SCI.5-	if gravity were increased, decreased, or taken		
(109-123)	NJ	6.5.4.6.A.3	away.		
(100-120)	1110	Exploring Aero			
		2009 Scien			
	Core Curriculum Content Standards				
New Jersey Science					
Grades 7-8					
Activity/Lesson	State	Standards			
			Use quality controls to examine data sets and to		
Fundamentals of		SCI.7-	examine evidence as a means of generating		
Aeronautics (145-176)	NJ	8.5.1.8.B.4	and reviewing explanations.		
			When energy is transferred from one system to		
			another, the quantity of energy before transfer		
			equals the quantity of energy after transfer. As		
			an object falls, its potential energy decreases as		
			its speed, and consequently its kinetic energy,		
			increases. While an object is falling, some of the		
			object's kinetic energy is transferred to the		
Fundamentals of		SCI.7-	medium through which it falls, setting the		
Aeronautics (145-176)	NJ	8.5.2.8.D.a	medium into motion and heating it.		
			An object is in motion when its position is		
			changing. The speed of an object is defined by		
Fundamentals of		SCI.7-	how far it travels divided by the amount of time it		
Aeronautics (145-176)	NJ	8.5.2.8.E.a	took to travel that far.		
			Forces have magnitude and direction. Forces		
			can be added. The net force on an object is the		
			sum of all the forces acting on the object. An		
			object at rest will remain at rest unless acted on		
			by an unbalanced force. An object in motion at		
C. ve de ve e véele e é		001.7	constant velocity will continue at the same		
Fundamentals of	NI I	SCI.7- 8.5.2.8.E.b	velocity unless acted on by an unbalanced		
Aeronautics (145-176)	INJ	8.5.Z.8.E.D	force.		
			Compare the motion of an object acted on by balanced forces with the motion of an object		
Fundamentals of		SCI.7-	acted on by unbalanced forces in a given		
Aeronautics (145-176)	NI I	8.5.2.8.E.2	specific scenario.		
Acionaulics (143-170)	INU	0.J.Z.O.L.Z	An object is in motion when its position is		
			changing. The speed of an object is defined by		
Airplane Control(209-		SCI.7-	how far it travels divided by the amount of time it		
256)	NJ	8.5.2.8.E.a	took to travel that far.		
Airplane Control(209-	140	SCI.7-	Calculate the speed of an object when given		
256)	NJ	8.5.2.8.E.1	distance and time.		
200)	110	0.0.2.0.2.1	Forces have magnitude and direction. Forces		
			can be added. The net force on an object is the		
			sum of all the forces acting on the object. An		
			object at rest will remain at rest unless acted on		
			by an unbalanced force. An object in motion at		
			constant velocity will continue at the same		
Airplane Control(209-		SCI.7-	velocity unless acted on by an unbalanced		
256)	NJ				
	NJ	8.5.2.8.E.b	force.		

Airplane Control(209-256)	NJ	SCI.7- 8.5.2.8.E.2	Compare the motion of an object acted on by balanced forces with the motion of an object acted on by unbalanced forces in a given specific scenario.
Tools of Aeronautics(257-326)	NJ	SCI.7- 8.5.1.8.A.a	Core scientific concepts and principles represent the conceptual basis for model-building and facilitate the generation of new and productive questions.
How an Airplane Flies	NJ	SCI.7- 8.5.2.8.B.a	When substances undergo chemical change, the number and kinds of atoms in the reactants are the same as the number and kinds of atoms in the products. The mass of the reactants is the same as the mass of the products.
How an Airplane Flies	NJ	SCI.7- 8.5.2.8.E.a	An object is in motion when its position is changing. The speed of an object is defined by how far it travels divided by the amount of time it took to travel that far.
How an Airplane Flies	NJ	SCI.7- 8.5.2.8.E.b	Forces have magnitude and direction. Forces can be added. The net force on an object is the sum of all the forces acting on the object. An object at rest will remain at rest unless acted on by an unbalanced force. An object in motion at constant velocity will continue at the same velocity unless acted on by an unbalanced force.
How an Airplane Flies	NJ	SCI.7- 8.5.2.8.E.2	Compare the motion of an object acted on by balanced forces with the motion of an object acted on by unbalanced forces in a given specific scenario.
How an Airplane Flies	NJ	SCI.7- 8.5.4.8.A.c	Gravitation is a universal attractive force by which objects with mass attract one another. The gravitational force between two objects is proportional to their masses and inversely proportional to the square of the distance between the objects.
How on Airplana Flica	NII	SCI.7-	Predict how the gravitational force between two bodies would differ for bodies of different masses or bodies that are different distances
How an Airplane Flies The Tools of Aeronautics	NJ	8.5.4.8.A.3 SCI.7- 8.5.1.8.A.b	apart. Results of observation and measurement can be used to build conceptual-based models and to search for core explanations.
The Tools of Aeronautics	NJ	SCI.7- 8.5.1.8.C.a	Scientific models and understandings of fundamental concepts and principles are refined as new evidence is considered.
The Tools of Aeronautics	NJ	SCI.7- 8.5.1.8.C.2	Revise predictions or explanations on the basis of discovering new evidence, learning new information, or using models.

			In order to determine which arguments and
			_
			explanations are most persuasive, communities
			of learners work collaboratively to pose, refine,
The Tools of		CC1 7	and evaluate questions, investigations, models,
The Tools of	NI I	SCI.7-	and theories (e.g., argumentation,
Aeronautics	NJ	8.5.1.8.D.b	representation, visualization, etc.).
			Model and explain current technologies used to
The Tools of		SCI.7-	capture solar energy for the purposes of
Aeronautics	NJ	8.5.2.8.C.2	converting it to electrical energy.
			Use evidence of global variations in day length,
			temperature, and the amount of solar radiation
The Tools of		SCI.7-	striking Earth's surface to create models that
Aeronautics	NJ	8.5.4.8.A.2	explain these phenomena and seasons.
			Model the vertical structure of the atmosphere
			using information from active and passive
The Tools of		SCI.7-	remote-sensing tools (e.g., satellites, balloons,
Aeronautics	NJ	8.5.4.8.C.3	and/or ground-based sensors) in the analysis.
			Forces have magnitude and direction. Forces
			can be added. The net force on an object is the
			sum of all the forces acting on the object. An
			object at rest will remain at rest unless acted on
			by an unbalanced force. An object in motion at
			constant velocity will continue at the same
		SCI.7-	velocity unless acted on by an unbalanced
The Activity Center	NJ	8.5.2.8.E.b	force.
The Albanity Conton	110	0.0.2.0.2.0	Compare the motion of an object acted on by
			balanced forces with the motion of an object
		SCI.7-	acted on by unbalanced forces in a given
The Activity Center	NJ	8.5.2.8.E.2	specific scenario.
The Activity Contor	110	0.0.2.0.2.2	Use scientific principles and models to frame
		SCI.7-	and synthesize scientific arguments and pose
Science of Flight	NJ	8.5.1.8.A.3	theories.
Science of Flight	INU	SCI.7-	Evidence is generated and evaluated as part of
Science of Flight	NJ	8.5.1.8.B.a	building and refining models and explanations.
Science of Flight	INJ	0.5.1.0.D.a	Design investigations and use scientific
		CC1 7	instrumentation to collect, analyze, and evaluate
Caiamaa af Elimbi	NI I	SCI.7-	evidence as part of building and revising models
Science of Flight	NJ	8.5.1.8.B.1	and explanations.
0 . (SCI.7-	Mathematics and technology are used to gather,
Science of Flight	NJ	8.5.1.8.B.b	analyze, and communicate results.
		001-	Gather, evaluate, and represent evidence using
		SCI.7-	scientific tools, technologies, and computational
Science of Flight	NJ	8.5.1.8.B.2	strategies.
			Compare the motion of an object acted on by
			balanced forces with the motion of an object
		SCI.7-	acted on by unbalanced forces in a given
Science of Flight	NJ	8.5.2.8.E.2	specific scenario.
			Results of observation and measurement can be
Integrating with		SCI.7-	used to build conceptual-based models and to
Aeronautics	NJ	8.5.1.8.A.b	search for core explanations.

			Compare the motion of an object acted on by balanced forces with the motion of an object
Integrating with		SCI.7-	acted on by unbalanced forces in a given
Aeronautics	NJ	8.5.2.8.E.2	specific scenario.
			Design investigations and use scientific
			instrumentation to collect, analyze, and evaluate
Intro to Aeronautics		SCI.7-	evidence as part of building and revising models
(109-123)	NJ	8.5.1.8.B.1	and explanations.
Intro to Aeronautics		SCI.7-	Mathematics and technology are used to gather,
(109-123)	NJ	8.5.1.8.B.b	analyze, and communicate results.
			Gather, evaluate, and represent evidence using
Intro to Aeronautics		SCI.7-	scientific tools, technologies, and computational
(109-123)	NJ	8.5.1.8.B.2	strategies.
Scientific Method(124-		SCI.7-	Mathematics and technology are used to gather,
144)	NJ	8.5.1.8.B.b	analyze, and communicate results.
			Gather, evaluate, and represent evidence using
Scientific Method(124-		SCI.7-	scientific tools, technologies, and computational
144)	NJ	8.5.1.8.B.2	strategies.
Scientific Method(124-		SCI.7-	Scientific reasoning is used to support scientific
144)	NJ	8.5.1.8.B.d	conclusions.
			Use quality controls to examine data sets and to
Scientific Method(124-		SCI.7-	examine evidence as a means of generating
144)	NJ	8.5.1.8.B.4	and reviewing explanations.
Scientific Method(124-		SCI.7-	Generate new and productive questions to
144)	NJ	8.5.1.8.C.3	evaluate and refine core explanations.